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Logarithmic correction to entropy of near-extremal de Sitter black holes

I will briefly review logarithmic corrections to black hole entropy. Following that, I will focus on thermodynamics of de Sitter black holes and our recent work (<https://arxiv.org/abs/2503.08617>) on $\log T$ corrections to the entropy of de Sitter black holes. I will establish the result that at leading order, the small temperature corrections to the extremal entropy are universal in the cold and Nariai limit. In particular, in the Nariai limit, the near-horizon throat geometry is 2-dimensional de Sitter space with two possible ways of capping the geometry – the usual Hartle-Hawking contour and the Maldacena contour, both leading to the same universal coefficient of $3/2$ for $\log T$ correction to the entropy of de Sitter black holes. This machinery paves the way for similar such computations and tests in higher dimensional dS black hole spacetimes, including rotating Kerr-dS black holes.

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